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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/477,764	01/04/2000	CHIA-HONG JAN	042390.P5488	9702

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DARREN J MILLIKEN
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP
7TH FLOOR
12400 WILSHIRE BOULEVARD
LOS ANGELES, CA 90025

EXAMINER

VU, HUNG K

ART UNIT PAPER NUMBER

2811

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/477,764

Applicant(s)

JAN ET AL.

Examiner

Hung K. Vu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,10-12,14 and 123-128 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 8,10-12,14 and 123-128 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 25.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1 A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 08/11/03 has been entered. An action on the RCE follows.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8, 10 – 12, 14 and 123-124 are rejected under 35 U.S.C. 102(a) as being anticipated by Matsumoto et al. (PN 5,726,479, of record).

Matsumoto et al. discloses, as shown in Figures 8 and 18, a gate electrode comprising,

a gate layer (4a) disposed above a substrate (1), the gate layer having a substantially level upper surface;

a conductive layer (9a) disposed over the gate layer, the conductive layer extending beyond edges of the gate layer;

thin first spacers (5) disposed in contact with opposite sides of the gate layer and below the conductive layer;

thick second spacers (7a) disposed in contact with the thin first spacers, each thick second spacer having a width that has a portion which is constant in a direction parallel with the thin first spacers. Note that the claimed language does not specific state whether the thick second spacer having a width which is constant in a direction parallel with the thin first spacers throughout its height, therefore the thick second spacers (7a) of Matsumoto et al. still reads on that limitation.

With regard to claim 10, Matsumoto et al. discloses the gate layer comprises polysilicon.

With regard to claim 11, Matsumoto et al. discloses the conductive layer comprises polycide.

With regard to claim 12, Matsumoto et al. discloses the thin first spacers comprise oxide.

With regard to claim 14, Matsumoto et al. discloses the polycide comprises titanium salicide (TiSi₂).

With regard to claim 123, Matsumoto et al. discloses the thick second spacers comprise nitride.

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With regard to claim 124, Matsumoto et al. discloses the thin first spacers are at least as high as the thick second spacers.

3. Claims 8, 10 – 12, 14 and 123-128 are rejected under 35 U.S.C. 102(e) as being anticipated by Chao et al. (PN 6,287,924).

Chao et al. discloses, as shown in Figure 1, a gate electrode comprising,

a gate layer (3) disposed above a substrate, the gate layer having a substantially level upper surface;

a conductive layer (11,12G) disposed over the gate layer, the conductive layer extending beyond edges of the gate layer;

thin first spacers (7 or 8) disposed in contact with opposite sides of the gate layer and below the conductive layer;

thick second spacers (8 or 9) disposed in contact with the thin first spacers, each thick second spacer having a width that has a portion which is constant in a direction parallel with the thin first spacers. Note that the claimed language does not specific state whether the thick second spacer having a width which is constant in a direction parallel with the thin first spacers throughout its height, therefore the thick second spacers (8 or 9) of Chao et al. still reads on that limitation.

With regard to claim 10, Chao et al. discloses the gate layer comprises polysilicon [Col. 3, lines 11 and 46].

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With regard to claim 11, Chao et al. discloses the conductive layer comprises polycide [Col. 3, line 42].

With regard to claim 12, Chao et al. discloses the thin first spacers comprise oxide [Col. 2, lines 53-54 or Col. 3, lines 3-4].

With regard to claim 14, Chao et al. discloses the polycide comprises titanium salicide (TiSi_2) [Col. 3, line 42].

With regard to claim 123, Chao et al. discloses the thick second spacers comprise nitride [Col. 3, lines 4-6].

With regard to claim 124, Chao et al. discloses the thin first spacers are at least as high as the thick second spacers [Figure 1].

With regard to claim 125, Chao et al. discloses the thick second spacers are at least twice as thick as the thin first spacers [Col. 2, lines 53-54, Col. 3, lines 3-5]

With regard to claim 126, Chao et al. discloses the thick second spacers are between 200 and 1200 Å thick (within the range of 300 and 2000 Å thick) [Col. 3, lines 3-5].

With regard to claim 127, Chao et al. discloses the thick second spacers are at least 800 Å thick [Col. 3, lines 3-5].

With regard to claim 128, Chao et al. discloses the thick second spacers are at least 800/100 times as thick as the thin first spacers [Col. 2, lines 53-54 and Col. 3, lines 3-5].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 125 – 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (PN 5,726,479, of record).

Matsumoto et al. discloses the thick second spacers are 300 Å. Matsumoto et al. does not teach exactly the thickness of the thick second spacers and/or the ratio between the thick second spacers and the thin first spacers, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the thick second spacers and the thin first spacers of Matsumoto et al. having a desired thickness and ratio, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

5. Applicant's arguments filed 08/11/03 have been fully considered but they are not persuasive.

It is argued, at page 5 of the Remarks, that Matsumoto et al. does not disclose the thick second spacers (7a) do not have a width constant in a direction parallel with the first thin spacers as claimed. This argument is not convincing because Matsumoto et al. discloses the thick second spacers (7a) having a width that has a portion which is constant in a direction parallel with the thin first spacers. Note that the claimed language does not specific state whether the thick second spacer having a width which is constant in a direction parallel with the thin first spacers throughout its height, therefore the thick second spacers (7a) of Matsumoto et al. still reads on that limitation.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

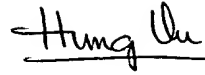
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Vu

October 14, 2003

A handwritten signature in black ink, appearing to read "Hung Vu", written over a horizontal line.

Hung Vu

Patent Examiner